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THE PAST AND PRESENT DISTRIBUTION OF SOME OF THE RARER ANIMALS OF SCOTLAND.

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IV. THE BADGER (*concluded*).

In the South of Scotland the Badger is still far from uncommon in certain districts, though of course in numbers not to compare with what were to be found only a few years ago. The Border Counties and those with coast-lines seem to harbour these animals most plentifully at the present time, as the statistics, I think, pretty clearly show. They have sooner become scarce in inland localities, owing, no doubt, to the accessible nature of most of their haunts there, while the more rugged coast-haunts have longest withstood the attacks of the poor Brock's enemies.

Stirlingshire.—There is plenty of evidence to show that Badgers were abundant in this county, especially along the great central range of hills, which form the highest ground in the county, with the exception of the hills to the east of Loch Lomond, including the lofty Ben Lomond. The 'Old Statistical Account' of the parishes shows this with tolerable distinctness, and a very fair idea of their former distribution may be gathered from the notices of it in that work.* The grouping of the more important localities

* Some years ago I had been at the trouble of indexing fully the whole twenty-one volumes of the 'Old Statistical Account of Scotland' for my own use. I afterwards offered this index to the publishers (Blackwood, Edinburgh), but it was refused, although their own index is far too imperfect

shows the preference the Badger had to the central range. Thus it is specially mentioned as common in Gargunnoch parish on the north, Killearn on the west, and Campsie and Kilsyth on the south side of the hills. Perhaps of all these Campsie held the largest numbers, owing to the particularly suitable cliffs and carns of the Campsie Fells. The reverend author of the account of Campsie (Rev. James Lapslie) seems to have paid considerable attention to the local fauna, and gives a very full and interesting list—*i. e.*, interesting after sifting the chaff from the grain. Of the Badger he says:—"There are two species of Badger found among the loose rocks of Campsie Fells, the one somewhat resembling a sow, the other a dog: the first is more arched in the back, and is not so nimble in turning itself." The Campsie Fells still hold a few Badgers, but they are now quite scarce. The last I have record of was trapped on Ballakinrain estate in 1875, which property lies somewhat to the N.W. of Campsie, but has the range of fells continued to it. Another was trapped on Aucheneck in the same year. Another was trapped on Woodburn estate, Campsie parish, in 1874. On the Campsie Fells, in 1867, a keeper of the name of Mathieson trapped a Badger, which is the next latest date I have note of, though I believe they have continued to exist there almost uninterruptedly. About seven years ago two were taken on the Strathblane Hills and sent to Culzean, in Ayrshire.

Linlithgow.—It is feared the Badger is here extinct. The stream Broxburn runs through Strath Brock, indicating its former presence, but there is little to show it in the 'Old Statistical Account.' About 1838, or between that year and 1845, David Carr trapped and killed three Badgers at Lochcote, and caught four more, which were taken alive to Wombwell's Menagerie. At this locality Badgers had taken up their quarters in some old lime mines underneath Bowden Hill, which is about three miles S.W. of Linlithgow. There are also some Badgers' earths at Nancy's Hill, near Champfleurie House, about two miles east of Linlithgow; and one was seen by Mr. Henderson, on Broomieknowe Hills about 1854.

to be of much real or ready use to naturalists. I have, however, found this MS. index most useful for my own purposes, and do not in the least regret the labour I expended upon it. Except to verify a quotation I scarcely ever require now to handle a volume of the 'Account' itself.

Midlothian.—Formerly abundant, as statistics show. A keeper, Mr. Nichol Kerr, trapped a number of them, both in this and the adjoining county of Haddington. They appear to be not yet extinct in the county. In 1880 a fine Badger was advertised for sale in the 'Scotsman' of April 25th, but the owner (Carfrae, bird dealer, Frederick Street, Edinburgh) knew nothing about it further than that it had been sold to him by a man, and that it had been trapped "oot sooth o' Pathhead," and brought to Edinburgh by the Pathhead carrier. The south-west of the county (parishes of Borthwick, Temple, Crichton, Heriot, Tala, Stow), with its numerous "deans," still probably harbour a few Badgers, as there is great store of good earthing ground, but they are probably very scarce. Mr. Ritchie, of Middleton, writes me that between 1866 and 1880 his keeper had only heard of one Badger being caught near Roseberry, parish of Temple, and Mr. Wood, late keeper on Blackshiels-shooting, caught one some years ago.

East Lothian.—Formerly common, and not yet extinct in this county. The Rev. Thomas S. Marjoribanks, of Preston, informs me that there are Badgers still in the wooded hill above Presmennan Loch on the Biel estate, belonging to Lady Nisbet Hamilton, and that he saw one which had been recently captured there. At Whittinghame the last seen was fifteen years ago (say 1867). Dr. J. L. Crombie writes me that a year or two ago one was seen in Tynninghame Woods, where there are many foxes' earths. In 1870 two were caught in Presmennan Wood, before noted, and Dr. Crombie has a young one in his collection shot above Haddington about twelve years ago.

Berwickshire.—Still abundant, mostly so on the rugged coastline. It is very common still in Upper Berwickshire, especially in the parishes of Gordon, Earlston, and Legerwood. Mr. R. Small has seen them frequently in these parishes, and remembers seeing one taken from a drain in the village of Earlston about twenty-two years ago (say 1859). The animal was seen running along the street at day-dawn, and had taken refuge in the drain. They are scarcely so common, however, as they were twenty-five years ago. Around Jedburgh it is still not rare, and within the last twenty years has been frequently found in Black Burn, Grey Peel Burn, and about the Merlin Dean, all of which localities are within two miles and a half of Jedburgh. Mr. James Hardy, of Old Cambus, writes me:—"Though diminished in numbers it still maintains

its place over a large area. One was caught in the Peasedean last winter (1880-81), and fortunately escaped. Its diminution here has been entirely owing to rabbit-catching, and the prices obtained for Badgers for the purposes of baiting. Now that rabbit-catching is likely to pass into the farmers' hands the old animals may regain a footing at least in wild places, as the Pease-dean and by the sea-coast."

Peebleshire.—Not extinct, but are much scarcer than in some of the neighbouring counties. In 1878 Mr. A. Wood got one alive opposite the foot of Manor Water on Edstone farm, and five years ago (say 1875) one was obtained on the Eshiels Hope. A pair killed in 1859 are in the possession of Mr. James Anderson, Chambers Nest, Peebles; they were got at Portmore, Eddleston. At Stobs Castle Mr. Alexander Taylor has only killed one in thirty-eight years, and none have been seen during thirty-one years on Traqueer by the keeper there. On Dry Grange estate, near Melrose, Mr. Clark killed four old ones and two young half-grown about fifteen or sixteen years ago (say 1867). They are probably extinct on that estate now. On Moffat Water one was seen three years ago (1878), and one was trapped at Dumerieff, one mile from Moffat, no doubt the same. One was seen near the head waters of Etterick, not later than nine or ten years ago (say 1870). As already noticed, Mr. Cox, at Culzean, Ayrshire, obtained five from Peebleshire about six years ago, and put them upon Ailsa Craig, where they have since thriven and bred.

Ayrshire.—At Culzean they are reported as having been extinct for twenty years, or since 1860 or thereabouts. Two tame ones were brought from the Strathblane Hills in Stirlingshire over seven years ago (say 1873), and placed in Culzean kennels. About eight years ago (say 1872) one was trapped near Kilkerran kennels, which must have been a stray one or an escape, as none have been seen since. I lack other data from Ayrshire, but I believe it to be scarce over all the county, unless perhaps in the extreme south, where it is most likely to linger longest.

Dumfriesshire, Galloway, The Stewartry.—At one time, as, Dr. Grierson, of Thornhill, informs me, Badgers must have frequented various places in the district. The last killed was taken at Clachrie Burn, parish of Closeburn, about twenty-five years ago (say 1857), which is now in Dr. Grierson's Museum. Another taken about the same time in Galloway is also in the

Museum. The latest on record I have was killed by the keeper on Cowdenknowes in 1880. Further S.W. it is still common at sea-coast stations; also not rare on Mabie and generally throughout the Stewartry.

In concluding the present series of papers on the past and present distribution of our rarer British animals, I may state that I have accumulated a large mass of notes upon the class of animals usually called "vermin," including Squirrel, Dipper, Jay, Rook, Magpie, "Hawks," Hooded Crow, Common Crow, Raven, and others, besides the *Carnivoræ*. I still want further particulars with a view to perfecting the subject, and if any one can render assistance by forwarding to me lists of vermin killed during the past ten, fifteen, or twenty years on any Scottish estate, I shall be obliged. I believe that the results, if carefully analysed and compared, will reveal some curious causes and effects, and interesting statistics in connection with this subject. The series of papers now concluded is confessedly imperfect, and must be regarded rather as an aid to further investigation, with a view to more general results at some future time. With such an end in view I can only repeat that any data of a kindred nature will be thankfully received by me, and will be carefully preserved for future use.

THE BIRDS OF BRECONSHIRE.

By E. CAMBRIDGE PHILLIPS,

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(Continued from vol. v., p. 409.)

RAVEN, *Corvus corax*.—Still common, and I think will remain so, a great part of the county being unreserved, and these birds frequent the mountains and highest hills, which are very little disturbed. Wherever you happen to come across a dead sheep you are sure to hear the hoarse croak of the Raven. This bird lives to a great age. When a boy, in Wiltshire, I used to pay a visit—generally on a Sunday—to some friends that lived in an old manor house where there was a tame Raven; he was then about twenty years old, and full of all sorts of mischief and iniquity, but being a great favourite and a good talker he had pretty much his own way. I remember him well, for on one

occasion he took a small slice out of my leg, *ut mos fuit*, and retired to the top of a spout to digest it, amidst my yells and the threats of the whole party. Happening to be near the place twenty-five years afterwards, I ventured to ask for my old friend, and to my surprise out he came with the same sidelong hop, the same malicious twinkle in his eye, and looking more sleek and diabolical than ever. I only heard of his death last autumn. He took a similar liberty with a large dog that he did with my leg, and got a nip in return that killed him. He must have been fifty years old when he died, and was one of the finest birds I have ever seen. The Raven is a bird of ill omen amongst the Welsh, and for that reason is seldom, if ever, kept as a pet by them.

Crow, *Corvus corone*.—One of the commonest birds in the county, and one that we can well do without. I believe this bird does more mischief than any hawk; he is always about the same place, and always on the look out, not for carrion, but for something better; a small leveret, a partridge's nest of eggs, or a half-grown rabbit—it all comes the same to him; whilst a weakly lamb has its eyes out before he well knows where he is. Although they generally work in twos and threes they come home to roost together, in numbers of from twenty to thirty, to the same roosting-place, and by waiting them in a few may be killed; but by far the best way to kill them is to trap them with an egg and a common gin.

ROYSTON OR HOODED CROW, *Corvus cornix*.—I have never yet seen this bird alive in the county, and can only record with certainty one instance of its having been met with here.

Rook, *Corvus frugilegus*.—Plentiful, there being several large rookeries in the county. I once visited a rookery near Brecon, composed of oak and other trees with a very large ash growing in the centre, and the owner informed me that, although he had lived there many years, he had never seen the Rooks build in that tree. Sometimes, indeed, a pair of young ones would begin to build a nest there, but it was instantly torn to pieces by the older birds, with every symptom of disapprobation. Why they should avoid this particular tree, which was quite sound, he could not say, but their continued and determined rejection of it showed a unity of counsel and fixity of purpose which to me was inexplicable. Only once during my residence here have I seen a

pied or parti-coloured Rook, and that was a bird with whitish wings.

CHOUGH, *Pyrrhocorax graculus*.—Although it occurs sparingly amongst the rocky cliffs of the Glamorganshire coast, I am unable to include it amongst the birds of this county.

JACKDAW, *Corvus monedula*.—Very common indeed, particularly about the tower of the grand old priory church of Brecon. Some-time since I saw a curious specimen of a white Jackdaw; the plumage of this bird was not only pure white, but its legs, claws, and eyes were white. I think among the Crow family an albino is very rarely seen.

JAY, *Garrulus glandarius*.—Very common in all our woods; in the hard weather of last winter the poor Jays were put to great straits and came into the town gardens for food. One was caught feeding with my poultry in one of the aviaries, where it must have pushed itself between the wires to get at the food. For a shy bird like the Jay this was somewhat singular.

MAGPIE, *Pica caudata*.—Very common, and, like the Raven, considered to be a bird of ill omen. Indeed I know of no bird that is more generally noticed in this respect, and the old adage,—“One, sorrow; two, mirth; three, a wedding; four, a birth,”—seems implicitly believed in by many of the country people.

NUTCRACKER, *Nucifraga caryocatactes*.—I have seen but one stuffed specimen in Wales, and that was a bird in perfect plumage, which was killed many years since in the adjoining county of Glamorgan.

STARLING, *Sturnus vulgaris*.—Although this bird breeds here pretty plentifully, yet the number that roost in the reed-beds of Llangorse Lake during the autumn must come from other parts. If you are on the lake about four o'clock in the afternoon you will see flock after flock flying over and pitching in the reeds, and this continues until they are all come; then with a roar—and no other word expresses it—the whole flock rises in one living mass, sweeping over the lake close to the reeds in a black moving cloud; then threatening to settle again, then up and round once more, with a regularity and precision of movement that is beautiful and wonderful to witness, until at length, their drill being over, they finally pitch and roost for the night. Their numbers on these occasions must be in thousands, and during the time they are

settled they keep up a continual chattering, but are silent whilst on the wing.

ROSE-COLOURED PASTOR, *Pastor roseus*.—I have the pleasure of recording the occurrence of one of these beautiful birds, if not actually in the county, at least close to the borders. It was shot in an apple tree at Cynghordy (one of the ancient seats of the Gwynnes), not far from Llanwrtyd, and was fortunately preserved. It was an adult male, in good plumage, and when alive must have been a splendid bird. It had been stuffed some years when I examined it, and the delicate rose-colour had somewhat faded.

HEDGESPARROW, *Accentor modularis*.—Pretty plentiful with us, but not nearly so much so as in England. Probably it is rather too cold here for it in winter.

ROBIN, *Erythacus rubecula*.—Common. The country people here say that the year-old bird kills the two-year-old bird, but I think the weaker generally goes to the wall. Only the other day a man called my attention to two Robins fighting, and one killed the other in an incredibly short space of time; he then picked up and showed me the dead bird, and it certainly was a fine old male, in beautiful plumage. It appeared to have been choked by the victor, as its plumage was almost unruffled.

REDSTART, *Ruticilla phœnicura*.—Is invariably called here the "firebrand-tail," and is very common in the gardens around Brecon and in the woods of the county.

WHEATEAR, *Saxicola œnanthe*.—Common on our hills and moors, but in no great numbers.

STONECHAT, *Saxicola rubicola*, and FURZECAT, *S. rubetra*.—Both common, especially the latter, there being still a great quantity of furze on the lower part of most of our hills. They affect favourite localities, for whilst in some places covered with furze they may be constantly observed, on other hills equally well covered they are hardly ever to be seen.

SEDGE WARBLER, *Salicaria phragmitis*, and REED WARBLER, *S. strepera*.—Both fairly common, particularly in the neighbourhood of and around Llangorse Lake, where there is an abundant growth of reeds.

NIGHTINGALE, *Philomela lusciniæ*.—Sparingly scattered over the county. There is a saying common here that the Nightingale is never heard westward of the Bwlch, which is distant about eight miles from Brecon, on the Crickhowell side of the county;

and although I have heard it near Brecon, ten miles on this side of the place referred to, I am disposed to believe that there is a great deal of truth in the saying.

BLACKCAP, *Sylvia atricapilla*.—Fairly common. It used to breed in my garden at Vennyvach, near Brecon, every year.

GARDEN WARBLER, *Sylvia hortensis*.—Very rare here. I have only known of one instance of its occurrence, and on this occasion the nest and eggs were taken.

WHITETHROAT, *Sylvia cinerea*.—Very common here.

LESSER WHITETHROAT, *Sylvia sylvicola*.—Very rare; I have never yet met with or seen a specimen. I give it place, however, among the birds of our county, on the authority of one of our resident landlords, himself a keen and observant naturalist, who has noticed it from time to time. Like many of our migratory birds (notably the Spotted Crake), it probably visits various places in the county year after year, whilst others are constantly avoided.

WOOD WREN, *Phylloscopus sibilatrix*.—Very rare.

WILLOW WREN, *Phylloscopus trochilus*.—Fairly common.

CHIFFCHAFF, *Phylloscopus hypoleis*.—I have noticed occasionally, but do not consider it to be particularly common.

GOLDEN-CRESTED WREN, *Regulus cristatus*.—Very common, the numerous larch plantations in the county being most suitable to its habits. It is usually considered a scarce bird, probably from its small size and inconspicuous colour, but I see it constantly, and there can be no doubt of its abundance here.

FIRE-CRESTED WREN, *Regulus ignicapillus*.—Common, but not so much so as the last-named bird. I have had many specimens brought me, and have killed several myself for the purpose of identification. This and the Goldcrest are very hardy birds, and during the severe frost of January last, when so many other birds perished, these merry little fellows were actively searching for their food in the firs and larches as usual, not seeming to care for or feel the bitter cold.

COMMON WREN, *Troglodytes parvulus*.—Very abundant, and like the Robin, a universal favourite with the Welsh.

GREAT TITMOUSE, *Parus major*.—Very abundant. A lady living near us has continually suspended from her verandah a hard piece of fat bacon. Many birds come and feed on it; amongst others a great number of Tits, who seem to consider it their special property.

BLUE TITMOUSE, *Parus cæruleus*.—Equally common with the last named, and one of the boldest and most attractive little birds we have.

COLE TITMOUSE, *Parus ater*.—Fairly common, as also is the closely allied MARSH TIT, *P. palustris*. I have often observed them both, and several specimens of each have been brought to me from time to time for identification.

LONG-TAILED TITMOUSE, *Parus caudatus*.—Plentiful. It sometimes leaves the woods and comes to our gardens for a very brief visit, always in small flocks, and always with the same eager and impatient movements, the same quick and restless flight, and uttering all the while its somewhat weak and plaintive note. Although the plumage of the bird is very loose, it seems to bear the cold here as well as the rest of the Tit family.

Of the British species of Wagtails, *viz.*, the PIED WAGTAIL, *Motacilla Yarrellii*, the GREY WAGTAIL, *M. sulphurea*, and the YELLOW WAGTAIL, *M. flava*, all are very common here. The Usk being a good trout river, whenever there is a rise of the fly on, the Wagtails may be seen in numbers actively running along its banks, flying and hovering in the most graceful way over the water, and constantly seizing a fly, whilst the plash of the heavy trout, as they, too, take their share, complete a picture most pleasing to the eye of a naturalist.

MEADOW PIPIT, *Anthus pratensis*.—Not very abundant in the county, and certainly not about Brecon.

TREE PIPIT, *Anthus arboreus*.—Very scarce.

(To be continued.)

THE DESQUAMATION AND DIGESTION OF SERPENTS, FROM A NEW POINT OF VIEW.

BY ARTHUR STRADLING, C.M.Z.S.

IN these days of zoological gardens, travelling menageries, and private vivaria containing living reptiles, there can be few people who are not familiar to some extent with the phenonema incidental to a snake's "shedding its skin." Everyone knows that, at intervals varying from one to three months in a state of health, a serpent becomes partially lethargic, refuses to feed, drinks and bathes but little or not at all, is impatient of

disturbance though not active to attack unless touched, and loses its iridescence, while its intrinsic colouring becomes duller every day. Since the outer layer of the conjunctiva is continuous with the general cuticular surface, the *Ophidia* being destitute of eyelids, blindness more or less complete ensues, evidenced by the filmy or rather *ground glass* aspect of the eyes, and frequent failure of aim should the reptile strike at an object. Then, after a period ranging between five and twenty days from the manifestation of the first symptoms, if all goes well, the epidermis cracks at the inner margin of the lips or at some part of the body, and becomes rolled up or reversed as the snake emerges therefrom, hungry and active.

Such is, roughly described, the process of desquamation. But those who have closely observed these creatures in confinement will sometimes have remarked a rather curious anomaly. A snake, evidently on the verge of shedding, is seen suddenly to reassume its normal brightness of hue (though with altered sheen), to become lively and even anxious for food, and to present such appearances generally as to lead to the conclusion that it has cast its slough. No slough, however, is to be discovered; but within twenty-four hours it is shed in the usual manner, or may even be burst in the act of feeding. The immediate cause of this deceptive appearance is not difficult to ascertain. The discarded cuticle is always found to be wet in its recent state; and without doubt an exudation of fluid takes place beneath it shortly before it is cast off, rendering it transparent, so that, although separate from the true skin, it allows the ground colours of the latter to be seen through it in nearly their normal vividness.

It is a fact well recognised by keepers of reptile-houses that the health of a snake, whether as cause or effect, is coincident with the regularity of its desquamation. "Bad shedding" is looked upon by them as a certain sign of derangement in some way. Without reckoning minor *accidents*—such as the false cataract which ensues from accumulation of three or four old plates on the eye, or damage to the cornea from their being rudely stripped off *en masse*—there are two or three ways in which this bad shedding is manifested. The epidermis may detach itself in irregular flakes, instead of coming away as a whole; or it may be changed too frequently; or it may refuse to separate altogether. I may cite a Thick-necked Tree Boa

(*Epicrates cenchris*), which I brought to the London Zoological Gardens from Brazil about two years ago, as affording an example of the second form of abnormality (for the first is not of so much importance); when I was last in England it was desquamating at intervals of about a week, and was miserably thin and exhausted. I have often observed the same thing in snakes whose proper habitat is the palæarctic region when taken into the tropics; under these circumstances they usually die of marasmus. A River-jack Viper (*Vipera rhinoceros*) died a short time since at the Gardens, fifteen months after its arrival there, during which lengthy period it neither fed nor shed its skin; and one not uncommonly sees a snake—especially one not yet habituated to captivity—die suddenly and unaccountably in this state, the body being apparently healthy and well nourished, and the internal organs presenting no trace of disease.

Is the casting of the cuticle, with its attendant phenonema, to be looked upon as a mere mechanical process of purification and renewal, or are there other and more important physiological reasons, involving an excretory function necessary for the maintenance of the reptile's life?

To begin with, it hardly seems probable that the simple mechanical inconvenience caused by the presence of the effete membrane which clothes it is sufficient to account for the lethargy and evident general *malaise* preceding its separation. When we remember that a healthy serpent will continue to feed in spite of severe wounds or other extensive injuries, and its apparent indifference to pain,—moreover, that when the skin has cracked it will take its prey with avidity, even though the flakes are still adherent to it,—we can hardly refuse to entertain the hypothesis that some great vital change in the economy is taking place. From the fact that its retention is fatal, and by itself alone enough to cause death, I believe the exudation of fluid which lubricates the epidermis and renders it easy of removal, to contain some important excretion, the getting rid of which is the primary reason for its being poured out; and that some pathological effect analogous to uræmic poisoning or other toxæmia occurs if it fails to be produced. We know that in mammals which transpire by the skin, cessation of the cutaneous action inevitably results in death if prolonged beyond a certain time; and that if such an animal be varnished, even for no more

than one-fourth of its whole surface, it dies with shiverings, exacerbation of temperature, and other evidence of blood-poisoning, innocent as the constituents of the sebaceous and sudoriferous secretions appear to be. The chief point which I would advance in favour of this physiological and pathological analogy—for of course I do not compare the minute structure of the skin or its glandular appendages with that of a mammal—is that the slough, if examined during the time of its actual separation or immediately afterwards, is found to have a slight but well-defined acid reaction. What the nature of this acid may be I have had no means of ascertaining, nor should I in all probability be a sufficiently competent chemist to discover, even if I had the appliances for analysis at hand; for there can be no doubt, judging from its instability and rapid decomposition, that it is some very complex organic compound. Its disappearance is not dependent on simple evaporation or the drying of the slough. This instability and another reason which I shall mention presently in the second part of this paper preclude the possibility of its being uric acid, while experiment has demonstrated that it is not lactic or any other of the acids which commonly result from chemical changes in the tissues.

Furthermore, this exudation seems to be preceded by a rise of temperature, and accompanied by its remission—precisely similar to what would occur under parallel circumstances in more highly organized beings; but this last is a statement which I make guardedly and with some reserve, and should be glad of more certain information on that head from those who have better opportunities for observation than I have. Nearly all my experiments have been conducted at sea, where it is extremely difficult to register minute variations of temperature with accuracy. I believe that I have obtained an increase constantly, but, as might be imagined, the difference is very small, and the operation of taking it and guarding the thermometers from surrounding influences one of great delicacy and difficulty.

The excrement (for there is but one) of a serpent in health may be said to consist of three parts—1st, a dark mass, made up of the *indigestible* residue of its food, feathers, hair, claws, teeth, seeds or other vegetable matters from the stomachs, easily distinguishable with the naked eye, mixed with microscopic particles of the same, and a variable amount of *digestible* but *undigested*

matter; 2nd, a white or yellowish white substance, composed of nearly pure uric acid,—so nearly pure that it is purchased for use as a chemical reagent,—with a little urate of lime and ammonia, oxalate of lime, purpurate of ammonia (the latter discovered by Prout, and yielding a magnificent crimson colour known as murexide), and a few other salts in very trifling quantities; 3rd, more or less water, containing some of these salts in solution. During derangement these three become blended together sometimes. As would naturally be expected, there is more uric acid and less simple excrementitious matter in the dejecta of snakes which live on frogs and fish than in those whose food consists of birds and animals; while it reaches its maximum in one which has been persuaded to gorge itself on raw meat—as may occasionally be effected with some Colubers: I have known the Moccassin (*Tropidonotus fasciatus*) and *Xenodon rhabdocephalus* take dead meat in default of anything else. The fæces of a serpent probably yield more correct results when examined with a view to determining the proportionate relation of their constituents in character and quantity to that of the food taken than those of any other creature, from its habit of feeding copiously and at long intervals, and consequently the definite nature of its meals; the progress of the food may also usually be traced externally in its passage from the mouth to the anus, so that we have no hesitation in saying what it is—frog, bird, or beast, of such and such a weight—that is furnishing us with details. It is for this reason that one is able to exclude uric acid in investigation of the active principle of the excretory cutaneous exudation, since the whole possible amount can be accounted for in the fæcal evacuation. Now, it is found that external heat quickens a reptile's digestion—to use a common phrase which is not quite correct in its strict application, since by it is meant only that it hastens the process of defecation after a meal. Warmth, on which a snake's activity so much depends, doubtless increases the peristaltic action of its intestine in common with the rest of the muscular system; and if the fæces be analysed they will be found to contain less evidence of utilised nitrogenous elements in the form of uric acid, and more unused digestible matter. Thus the snake really derives less benefit from “quick digestion” than from slow, because the former is incomplete and allows it to extract less nutriment. The question which has suggested itself

to me, in consideration of these phenonema, is whether a mistake is not made in the reptile departments of menageries in keeping the inmates at too high or too equable a temperature. Even in the heart of the tropics, where there is very little distinction of season, considerable variation must constantly be experienced from local and accidental causes, and most likely this might be imitated with advantage to reptiles in captivity. I have obtained individuals at different times from broods born or hatched in our own zoological gardens and in continental collections,—pythons, boas, and various colubrine snakes,—and in every case mine have seemed to get on better than those which remained, though they are exposed to many apparent disadvantages in a seafaring life—irregular food-supply, exposure to air, and constant changes of climate. I have come at length to the conclusion that they owe their well-being to this change of climate and absence of *fixed* artificial heat; and I have never known any of them suffer from that irritable condition of the stomach, so often noticed in menageries, which gives rise to constant rejection of the food, and death from inanition—though I have occasionally caused them to vomit by inadvertently making their cages excessively hot in the winter. The purest uric acid excrement which a serpent produces is that passed immediately after its desquamation, because the long period of inactivity which precedes it has enabled it to convert all the nutritious material in its stomach. It has lately been demonstrated that in comparatively cold countries, where snakes have a well-marked and regular time of retirement during a certain portion of the year, they lay up a stock of adipose tissue in anticipation of their retreat, like other hybernating animals—though naturally less in proportionate amount, owing to the tardiness with which their vital functions are performed, and the small quantity of fuel necessary for their consumption.

There are probably many conditions under which the temperature of a reptile varies independently of external influences, which would be very interesting if properly worked out by patient observers. We have seen more than once how, contrary to all pre-conceived ideas and traditions on the subject, a pythoness actually generates heat during incubation; and it is not unreasonable to suppose that a similar development may take place concurrently with active digestion, impending suppuration, or the progress of disease.

ORNITHOLOGICAL NOTES IN FRANCE AND
SWITZERLAND.

BY HUGH A. MACPHERSON.

RAMBLING through Paris on June 21st, I came across three young Golden Orioles in a little dark bird-shop. I bought one, and a Wryneck, a Redstart nestling (with a white patch on its occiput), and a young Hoopoe. Tereus escaped, however, from my hand, squeezed through the interstices of a Venetian blind, and strutted up and down the hotel roof, where after a wild chase I left him. The Oriole refused to eat that night. At 4.30 on July 23rd he was clamorous, though covered up. The three nestlings at first slept together, huddling close to one another for warmth. Not being able to procure proper food for the Wryneck, I let him go (for he was well fledged), in a copse. Occasionally the young Oriole appealed piteously to the Redstart to feed him, especially when the latter was perched overhead. Both birds were interested when a fly approached the cage, though "loriot" was very young. It was interesting to see the feather tracts gradually expanding. The little Redstart soon fed himself, and was on the *qui vive* for food throughout the day, beginning about 3 a.m. The Oriole was latterly contented to wait until 6 or 7. On June 24th the Oriole would probably have left the nest, as the form of excrement changed. On June 24th he took several little flits in my bedroom; when I spoke to him he flew on to my shoulder, and fluttering up to my face, clamoured literally at my mouth for food. On June 27th his body, bare under the wings and on the neck on June 21st, was well covered; his tail, only sprouting on June 21st, was now well developed. His cry was a "chewit" or "pewit," piercing when he thought himself forgotten. When he received a morsel, he gave a little jubilant cry of pleasure, followed by the usual note, and mouth opened for a second morsel. I compared its expression on receiving food to the word "wethery-wethery." When bidden sternly to sleep, he sobbed himself gradually off, the "chewit" growing lower and lower, until he was fast asleep. His happiest moments were passed on my shoulders, to which he always essayed to ascend. Knowing my voice so well, he always called for food when he heard it: my sister feeding him when I was unable to do so, he

grew attached to her also. He often stretched his wings across his feet. He used to lower his neck and hunch his back. The feathers on the neck were the last to expand. The tufts of down on his head lingered until July 7th, when he scratched the last of it off with his foot. He became fond of drinking water. From an early age we had trickled drops down his throat, the weather being so hot. His early efforts to drink were comical, as he could not distinguish between the water and the rim of the continent glass, and so allowed his little beak to wander in all directions but the right one. He was fed on fresh meat and bread-and-milk, varied as far as possible with cherries, apricots, and other fruit. Unluckily, his voracious, cuckoo-like appetite, drove him into a fatal illness. I wanted to add ants'-eggs to his food, but being on the sick list could procure none. Though I have kept most of the British passeriform birds in confinement, I have never found any which interested me more than this intelligent Oriole. He died on July 12th, having been my constant companion for three weeks. Two gentlemen, whom we met afterwards at Montreux, told us that they had repeatedly procured young, well-fledged Orioles from Savoy peasants, but they had never kept them alive, on a fruit diet, more than a few weeks. I should be glad to know, if H. L. Meyer is correct in stating that *Oriola galbula* moults in February.

We reached the medical spa of Mont Dore, in Auvergne, on the 24th of June last. Early on the 25th I saw, and heard the call-note of the Meadow Bunting, several of which haunted the left side of the Grand Cascade. On July 14th, a turning of the Clermont road brought me, unnoticed, within a few yards of a male of this species, singing lustily on the top of a bush his sweet, jerky, varied strain. The clear grey head, with its black stripes, contrasted prettily with the breast of reddish cinnamon. I tried unsuccessfully to obtain a nest of *Emberiza cia*. The peasant boys could bring me none of any kind, whilst the condition of my hands, confined for ten weeks in bandages of carbolic acid, applied for viper bites, made it extremely difficult, if not impossible, to get over rough ground. Half an hour before being bitten by the grey reptile, the movements of a pair of Whitethroats betrayed the whereabouts of their five callow young. Still unclothed July 4th, six days later, their feather tracts were well marked; at noon, July 7th, they were well feathered and

fast asleep. Besides *Emberiza cia*, a fine Black Redstart crossed my path on June 25th. Many sleepless nights, on and after June 30th, were gladdened by the refrain "cheerweeder—sweeterweeder," commenced about 3.30 a.m., ceasing between 8 and 8.30 p.m. The stable roof haunted by this feathered minstrel was *vis-à-vis* to our rooms in the Grand Hotel. He seldom left his gable, but when he did so his visits to a pile of loose timber, stones, and rubbish immediately behind the *dépendance*, roused us to useless searches for his nest. About July 10th, his visits to the roof were few and far between; other adult males repeatedly passed us, carrying insects to their young. On July 16th two young male Black Redstarts issued unexpectedly from the loose crevices of a stone dyke; they bowed fearlessly, bobbed their tails and bodies, hopped energetically in and out among the pieces of loose grey rock; they also took short flits after gnats, sometimes perching on an ash tree with their presumptive parent. On July 20th one of these little fellows, which I had trapped the evening before to moult in confinement, expired from a slight fall, as we left Mont Dore for Clermont. Some Pipits, which haunted the plateau behind the town, on the cascade side, were probably *Anthus campestris*. The only bird of interest remaining on the list of those which I studied continuously (for I obtained glimpses only of the Rock Thrush and Oriole) is the Common Buzzard. A pair of adults, whose young were offered for sale by a guide, constantly worked the valley for food, as well as the heights around. About four miles from Clermont a Crested Lark rose close to our carriage; House Swallows and Sparrows, absent from Mont Dore, became numerous. Our tedious detention by ill health at Geneva was not quite barren. We closely examined the rarer birds in the museum, saw a wild Serin on the south of the town, and obtained from a tailor (the evening before we left) a couple of hand-reared Woodchat Shrikes. The female lived until the September following; at her decease she had lost no feathers. The male began to moult at once, and on October 24th the process was still incomplete. The medical station of St. Beatenberg was reached August 11th. Here the Black Redstart haunted chalet roofs; some constantly perched on the telegraph wires outside the Alpenrose Hotel. On and after August 15th the males only sang the first portion of their song; two old fellows exhibited short sprouting tails at this date, and a

Goldcrest had lost a number of wing-quills. On August 17th two broods of Black Redstarts haunted a manure heap, two doors from the post-office, in company with immature Chaffinches and Yellow Buntings; the youngest Redstarts were weak on the wing, and were partly supported by their parents. The youngest disliked the drizzling rain as much as did the elderly birds deep in moult. On the 18th I particularly noticed a male Redstart on the outskirt of Interlaken. His chest was literally naked. The feathers of the lower parts were darker than in the Auvergne nestling (which had died); both birds wore the yellow membrane of nestlings on the beak. On August 28th, in very bad weather, my spirits rose at a strange cry near the Kurhaus; a wary Nutcracker shortly afterwards flew from tree top to tree top near me. Another which settled in a fir on the valley side below the road suggested the Rook in outline, the long beak reminding me roughly of the Kingfisher. Taking a "header" downwards, he rose as he approached a second tree; once landed, he plumed his mottled dress, sprang lightly from bough to bough, and repeated many times a melody composed of the syllable "yerk," repeated each time that he performed, from five to eight times in close succession, while his throat vibrated visibly. Between this date and September 4th, Nutcrackers often passed our windows, flying from fir top to fir top. They appeared to leave the higher belt of fir in order to forage for nuts at a lower elevation. During flight the white extremities of the tail feathers are clearly seen. Despite the drizzling downfall of August 27th, an extremely large party of Titmice worked up the bushes on the right bank of the Alpenrose watercourse. Long-tailed Tits were as numerous as Blue, Great, or Cole; all, with one or two exceptions, shewed the pure white head of *Acredula caudata*; the exception or exceptions as certainly possessed the black stripes seen on the head of an ordinary example of our bird, *A. rosea*. Two Long-tailed Tits, the only members of a large party that I could examine closely, on the Rhone's right bank, 5th October, distinctly wore the black stripes of *A. rosea*, instead of the white head worn by all but one (or two) of the Beatenberg examples. I saw one of these Geneva birds pick off and eat a small caterpillar. Black Redstarts and Blackcaps were at Geneva on October 5th. As I returned from the snow-wrapt Gemmel Alp, September 2nd, a Crested Tit flew past me on the edge of the

wood. The next morning I found in the same place a numerous party of Great Titmice, Cole Tits, Goldcrests, and Tree Creepers, hunting together on the best of terms. No Marsh Tits were in the party, for they hardly reach this elevation; but the van was led by six or seven Crested Tits. The last-named were timid; again and again they disappointed me by flitting away nervously to tall trees, where they could hardly be discerned; but as I followed the party continuously through bog and brushwood, they gradually became accustomed to me, and even descended to *terra firma*, quite close to me. The quiet gray wings give the Crested Tit a sombre appearance when flying; on close inspection, the delicate crest, jet black throat, and pinkish under-parts render this titmouse highly pleasing. Although I possess a good ear for the notes of birds, I have as yet acquired no facility for putting their cries into words; once, the call of a Crested Tit very close to me on the Alpenrose road, reminded me much of *Parus ater*. On other occasions, I thought that the syllable "chrrit," or "prrit," repeated briskly, bore some resemblance to the note. I only heard the liquid 'little song uttered twice, when one individual pursued another. *Picus major* and *Loxia curvirostra* are the most interesting birds I find in my list of general residents. Twice I saw, as I believed, *Dryocopus martius*, but from the distance could not feel quite certain. It was well known to my *coiffeur*, the keenest *chasseur* in the village. Hawks were fairly numerous. Two old birds, often to be seen with two young ones, were apparently Goshawks, of which also we saw several stuffed specimens. As we awaited a Thun steamer on the 8th, a very large brown hawk, ostensibly an Osprey, descended upon some prey in the lake; when he rose, he flew with wild cries into the woods on the Jungfrau side of Interlaken. At Bern, on September 9th, the Black Redstart was once more in full song. On September 11th, I failed to identify, in the rain, two birds in the Villeneuve or Rhone marshes. Early on the 12th, a "reeling" sound in the same locality brought to mind a passage in Mr. Harting's 'Summer Migrants.' Following up, I was soon *vis-à-vis* with a small reed bird of some species. The breast and under parts were pale buff or white; upper parts, brown. From the note it might be the Grasshopper Warbler. Ten minutes, perhaps later, on this auspicious morning, a loud, clear "cluck" introduced the Aquatic Warbler, which ran up to the top a

neighbouring reed. The throat was whitish, but less clear than the under-parts. Above the eye ran a line of yellow; then came one of dark brown or black; down the centre of the head ran a median stripe of yellowish. The light brown back was marked with longitudinal black streaks; of these the broadest was in the centre of the back. The lively little fellow seemed to spend most of his time among the roots of the reeds; he ran up and down with great rapidity. Very early, September 14th, three reed birds shared possession of a faggot pile on the edge of the morass with *Passer domesticus*. Only one of the former awaited my arrival and subsequently close proximity; very fearless, its light, active movements reminded me of the Pekin Nightingale; its legs seemed long, its outline undulating. When it flew to a reed, which bent beneath its weight, its wedge-shaped tail was well displayed. Returning home the same forenoon, I saw a male Bluethroat alight on a vineyard wall, overlooking the road near the Castle of Chillon. Having studied this species on the Dovre Field for some days, in July, 1878, I saw with increased pleasure, that this Chillon bird wore the entire blue gorget assigned to *Cyanecula Wolffi*, in contradistinction to *C. leucocyana*. From its tameness I thought it a bird of the season. It foraged boldly round me, taking short flights in and out of a garden on my right, and even clinging to the perpendicular edge of the vineyard wall, to secure some fugitive insect. Not until September 30th, though I constantly passed this spot on perpetual but worthless expeditions to trap one or more of the reed birds, did I fall in with Bluethroats again. Meantime the *bec-figue* had departed, about the 24th. The solitary specimen met with on the outskirts of Interlaken had puzzled me, as did some Red-backed Shrikes. I did not at first recognise the owner of those well-marked grey or white secondaries. Those so numerous at Montreux hawked insects constantly, darting off the branches of the walnut trees in the way of the spotted flycatcher. But on September 30th, our last day at Montreux, a "red-tail" flew close to me in the marshes which could not belong to a Black Redstart; after plodding another mile through the tall reeds, I saw two Bluethroats quite close to me, in a comparatively dry spot. On my approach, one crossed the canal; the sun at that moment showed up the throat of the other, perfectly blue, but centred with a white or creamy spot. In colouration he other-

wise closely corresponded with the rather smaller bird seen on the 14th inst. He constantly vibrated his tail, but in silence; as he turned, his greyish back and whitish undertail coverts were well displayed.

Despite a cruel wind at Geneva, myriads of House Martins hawked up and down the streets; over the Rhone played nearly an equal number of Swallows and some Sand Martins. In the market, October 5th, the most interesting bird was a female Gelinotte.

At Paris, on October 9th, a Stone Curlew shared the honours of a stall with numerous bunches of Thrushes. In the *Marché des Oiseaux* were Ortolans, many Serin Finches, Short-toed Larks, and a Crested Lark. An old birdstuffer, near the Rue St. Honoré, showed me Paris examples of *Lanius collurio* and *auriculatus*, remarking that the latter bred regularly near the city. Some Palmate Newts, which I detected in a bottle crammed with the two common species, had not lost the fine tip which I think is stated to be generally absorbed before winter. They reached home safely, in company with some Montreux examples of *Rana esculenta*, caught for my friend, Mr. O. Aplin. As recently as the 30th of September, there were Villeneuve examples of *R. esculenta* in all stages of the or tadpole state.

ORNITHOLOGICAL NOTES FROM DEVON AND CORNWALL.

BY JOHN GATCOMBE.

ON March 8th I watched through a powerful telescope a fine Black-throated Diver near the shore; it was in winter plumage, the uniform light sides of the neck at once distinguishing it from the Great Northern Diver, the dark bands on the neck of which are always more or less observable at all seasons. Many Razorbills were also on the coast at that date, and two large flocks of Ducks and Curlews were seen flying up the Tamar. The Black-headed Gulls had assumed the complete dark head, and the Herring Gulls were constantly uttering their breeding cry. By March 12th several Wheatears had arrived, and many Lesser Black-backed Gulls were to be seen in full spring plumage. On the 16th I examined a recently-killed Northern Diver, the

stomach of which contained three small flatfish, and from its gullet were taken several large prawns. On March 24th a Garganey was obtained.

I saw a large immature Glaucous Gull on the coast on April 9th, rather a late date for that species in this locality. Whimbrels I heard and saw on the 24th, and by the 28th, with the wind S.W., Swifts had also arrived.

On May 2nd I examined a Swallow which had been picked up on the rocks at the base of the new Eddystone Lighthouse, against which no doubt it had flown during the night. By the 21st the Herring Gulls at Wembury had many nests with eggs in them; and I observed some Shags in their beautiful shining bronze-green plumage, but which had already lost the peculiar erect and curved crest of early spring.

At the end of June a young Jackdaw (pure white) was captured alive on the cliffs near Mount Batten, Plymouth; it had pink eyes, showing it to be a true albino, and was altogether the handsomest variety of the species I ever saw. Several young and a few adult Greater Spotted Woodpeckers were obtained about this date, I am sorry to say; for the species is by no means common in this locality.

Many Whimbrels returned from their breeding places about July 21st, and I was told of some having been heard several days previously.

Young Herring Gulls made their appearance in the Sound and harbour on August 7th, and I remarked that their flight was very different from that of the old ones, being lighter and more buoyant. On the 10th an adult Common Tern was seen hovering over a school of mackerel, reminding me that "Mackerel-bird" is a common name for this species on some parts of the coast of Devon; it was rather early for its appearance in this neighbourhood, for we seldom see any before September. On the 23rd I noticed the last Swifts for the season, and the same day a young Puffin was brought to one of our birdstuffers, which had been caught with a hook and line. About the same time some Manx Shearwaters, Common and Sandwich Terns were sent from Carbis Bay, near St. Ives, Cornwall, to be preserved: the Shearwaters were adult, but in full moult after the breeding season, and their plumage very dull; the leg of one specimen had been shot off just below the tarsal joint apparently some

time previously, for the end of the stump had perfectly healed and had become covered with a smooth skin: the Terns also were adult and in excellent plumage, scarcely showing any sign of moult. Sandwich Terns are very uncommon on this part of the coast: young ones are sometimes met with in the autumn, but adults rarely. On the 26th a young Black Tern was brought to a Stonehouse birdstuffer, also a female Peregrine Falcon, both obtained near Plymouth. Common Sandpipers had by this time returned to the coast from their breeding places on the moorland streams.

On October 7th a young Peregrine Falcon with jesses on was sent to Stonehouse from the neighbourhood of St. Germans, where it had been unfortunately shot by a gamekeeper; it was afterwards found to have been lost with another at Quethioek, near Liskeard; on examination I found it perfectly gorged with a recently-killed Wood Pigeon. What a pity it is that gamekeepers cannot be taught to spare Falcons, especially trained ones, which the presence of jesses should surely protect! Several Short-eared Owls were shot as early as October 3rd. Plymouth Sound and harbour in October were full of Gulls, and among them I noticed one with *white* flight-feathers; this I think must have been a small Iceland Gull, or possibly an Ivory Gull, but I could not get near enough to be quite certain. Some Curlew Sandpipers were sent from Wadebridge, Cornwall; and I also heard from a friend in Ireland that several had been killed about this time on the margin of Lough Neagh. Numbers of young Razorbills and Guillemots were daily to be seen along the coast, apparently in a very weak and starving condition, and a great many were easily caught; I am unable to account for this, for we had had no long-continued gales. On October 12th a young Honey Buzzard in an interesting state of plumage was killed at Spriddlestone, near Plymouth, and brought to Stonehouse to be preserved; its forehead was almost pure white, and the feathers on the top and back of the head were tipped with the same, reminding one much of the markings on the head of the young Osprey; it also had long mystachial bands, which I do not remember having before observed on the Honey Buzzard, but all the specimens which had previously come under my notice were adult. When raised, the basal half of all the feathers appeared to be white; the tail was marked as usual with broad and

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narrow bands. The stomach, strange to say, contained nothing but a quantity of white feathers (apparently its own) in a similar state to those which are often found compressed in the stomach of a Grebe. I expect there must have been a regular migration of these birds, for the person who killed it was told that many large hawks had been daily seen in the same neighbourhood. Several Common Buzzards were also obtained, and the stomach of one I examined contained nothing but the remains of Coleoptera. A Pomatorhine Skua (in change) was also killed, having two odd-coloured legs, one being wholly black, the other partly light blue and partly black, similar to that of the so-called Black-toed Gull. It is somewhat remarkable that the stomach of this bird, like that of the Honey Buzzard just mentioned, contained nothing but feathers: I think it probable, however, that these feathers might have been accidentally swallowed by the bird when constantly picking itself during the moult. An immature Great Crested Grebe and an adult Arctic Tern were killed in October on the St. Germans River; the Tern still retained its summer plumage, and the man who killed it called it the "Pearl Gull." Another Common Buzzard and some Oystercatchers were obtained later in the month, and many Widgeon and Golden Plover, with two or three grey ones among them, were brought to the market.

On November 5th I watched a large Northern Diver and a Slavonian Grebe off the Devil's Point, Stonehouse. It was very interesting to observe the action of the Grebe when diving in deep water, taking a leap upward to gain impetus enough to reach the bottom. On the same day I saw a Snow Bunting, a very uncommon bird in this locality. The weather was then very mild, after a dense fog, and the Sound and harbour were full of Kittiwakes, with a few Terns. I examined a Long-eared Owl, killed in the neighbourhood, the stomach of which contained the remains of a large rat. On November 18th I observed two immature Black Redstarts on the rocks at the Point, Stonehouse, and a Grey Phalarope was also seen. Since that date more Black Redstarts were noticed in another locality, and on the 23rd a Wheatear; there appeared to be something wrong with one of its wings, which slightly drooped, and this perhaps operated to prevent its departure at the usual time.

Mr. Clogg, of Looe, informed me in a letter that he had seen

but two Black Redstarts during the previous year (1880); one, early in adult plumage, and another (immature) that had been caught in a greenhouse, and which I am glad to say he set free. I do not think that I saw one during the whole of that year. A curious variety of the Common Linnet which I examined had the whole plumage pure white, with the exception of a few dark feathers in the wings and tail; it was caught in October last, and soon after being caged sang beautifully, but unfortunately died suddenly shortly afterwards. Late in November two rather remarkable varieties of the Blackbird daily visited our garden; one of these had a perfectly white head and neck, the other was marked like a Magpie; both no doubt belonged to the same brood.

OCCASIONAL NOTES.

BADGERS IN WEST CORNWALL.—*Apropos* of Mr. Harvie Brown's article on the Badger in Scotland, I may mention that this animal is of very frequent occurrence in West Cornwall. I myself know by repute of two coverts in my neighbourhood which are never drawn blank for a Badger; and a few of my friends who have been giving especial attention to Badger-hunting have since last April, within an area of a mile from Prussia Cove,—a fishing nook in Mount's Bay which is a favourite place of resort with me,—killed twenty-one Badgers.—THOMAS CORNISH.

[The destruction of so many Badgers within so short a period in one district we cannot regard but as a senseless persecution of a comparatively inoffensive animal. What a contrast is here afforded to the treatment which the Badger receives in a certain part of Leicestershire, where a gentleman of our acquaintance affords this animal every possible protection! He has a pair close to his house which he feeds regularly, and which bring out their young for his inspection, affording him the greatest pleasure, from the observation he is able to make of their habits.—ED.]

VARIETY OF THE IRISH HARE.—From some of the midland counties of Ireland I have occasionally received a curious variety of this animal, the upper parts being bright buff-colour, deepest along the back, and graduating into white on the under parts. Near Dublin, on a property at Donabate, they have become numerous, and from thence spread northwards for some miles. A single young one of this variety is often discovered in company with a pair of the common kind in the breeding-place; and again one of the common Hares is found with a pair of the variety. Have any of your

correspondents met with anything similar amongst English Hares?—
A. WILLIAMS (2, Dame Street, Dublin).

BLACK RAT IN THE CHANNEL ISLANDS.—The present distribution of the Black Rat being a matter of interest to zoologists, the following notes concerning it may be acceptable. It is still pretty numerous in Jersey, especially in the eastern part, and in Guernsey. In Sark, where its rights have not been disputed by its brown relative, it is abundant. The fact of no vessels coming alongside in this latter island, all landing of goods and passengers being effected by means of small boats, accounts of course for the non-introduction of the Brown Rat. How the Black Rat came there, or whether its occupation of the island dates from the time that it was continuous with the mainland, are interesting matters for speculation.—
J. SINEL ("Bagot," Jersey).

CORMORANTS BREEDING ON AN INLAND LAKE.—Towards the end of June, 1876, while driving through the Ox Mountains, Co. Mayo, I noticed a large number of Cormorants, *Phalacrocorax carbo*, roosting on an island in a lake, Lough Attymas, about eleven miles from the sea. On making inquiry among the peasants I was informed that about eight years previous to my visit there had been a cabbage-garden on this island which was made a cover for the illicit distillation of whisky, or "poteen," and when the still was discovered and seized by the police, the spot was first taken possession of by a colony of Herons, *Ardea cinerea*, which built their nests on some small sallows and bushes, and they continued to frequent the spot regularly for a few years until they were driven off by the Cormorants; these latter, coming in large numbers, held undisputed possession of their lonely home until I visited their retreat. There had not been a boat on the lake for several years, so I was obliged to send one out from Ballina, and this proved so leaky that I had great difficulty in carrying out my project, but on reaching the island I saw a wonderful sight; the bushes half-dead, killed, I suppose, by the fresh guano, were laden with nests wherever room could be found, and the ground was so closely occupied that I had considerable difficulty in walking without treading on the nests. The old birds were so tame that they would not fly away when I landed, so I went round and drove them away with an oar, but as fast as I had chased them off on one side they returned on the other, so I left them alone and betook myself to examining the nests; where the still had formerly been placed was a circular wall about 2½ ft. high, and the nests were crowded as close together on the top as they could be: there were, I should say, seventy or eighty nests altogether on the island, and in the greater number of them were young ones; but I took three or four dozen of eggs. The stench was intolerable, and, when I walked under the trees, the young birds above

would open their mouths and void the contents of their crops, as I have seen young Herons do; in fact, after a stay of ten minutes, I was glad to get off again. The wind had freshened a good deal since I started, and I had some difficulty in making land: by the time I got to shore the cot was nearly full of water, and most of the eggs, which were lying loose in the bottom, were broken; however, I brought home a dozen or so. On a later visit I had a terrier dog with me, and he seemed so anxious to attack the Cormorants that I took a young bird, about half-fledged, from the top of the still, and put it into the water to let the dog have a swim after it; but to my great surprise, though the bird could never have been in the water before, it dived away with great rapidity, not leaving the terrier the least chance of catching it. The year following my raid a young man commenced to cultivate the island again, and he drove off the Cormorants by lying out in the evening when they were coming in from the sea, and shooting at them: so they deserted the place; but I was told that this year, 1881, a few pairs again built their nests on the island. The peasants living on the bank of the lake informed me that the number of fish, which are chiefly pike and perch, had much diminished since the Cormorants took up their residence there. I saw myself a large drove of the birds swimming along in a close body, and here and there I saw one dive, and then another, so that no doubt the fish had a hard time of it. — J. J. FFOLLIOTT DARLING (Ballina, Co. Mayo).

THE NOSTRILS OF THE CORMORANT.—Having had my attention directed by Mr. Romanes to the fact that Cormorants during a long flight, and for some time after roosting, hold their heads agape as if panting, and it having been suggested by him that this fact is presumably due to a remarkable condition of the nostril which he had observed, I undertook an anatomical investigation of the latter point, with the following results:—The external nostril in *Phalacrocorax carbo* is a mere slit situated at the end of a shallow superficial groove, which runs backwards along the beak parallel with its lower edge, and lying between its lower and middle third. When a bristle is introduced into the slit, it never succeeds in forcing a passage into the nasal cavity. If the skin which forms the outer boundary of the slit is carefully reflexed, a groove is exposed which runs from the external slit-like nostril to a narrow canal lined apparently by modified mucous membrane. This canal, when the mucous membrane remains, is externally from $1\frac{1}{2}$ to 2 millims. in diameter; but it rapidly diminishes, and appears to end blindly. In all the specimens examined, however, when the skin has been reflexed, it is possible to pass through this canal, without forming a false passage, a bristle about the size of an ordinary horse-hair—*i. e.* less than 1 millim. in diameter. The bristle is more easily passed in young birds than in old ones: this seems to be due to the osseous canal being relatively larger than in the former. Almost immediately beyond this narrow passage

is the large nasal chamber, lying above and internal to the palatine bone, and in free communication with the buccal cavity. The mucous membrane lining the nasal chamber has the same structure and the same nerve-supply as in other aquatic birds. The nasal region of the Cormorant, and to some extent also in the Gannet (*Sula*), thus differs chiefly from the nasal arrangement in other birds—(1), in having a very small external nostril, the passage in this slit-like aperture being almost obliterated; (2), in having the osseous canal only $1\frac{1}{2}$ to 2 millims. in diameter externally, and scarcely $1\frac{1}{2}$ millim. at its narrowest part; and (3), in having the nasal chamber in very free communication with the mouth. This state of things, it may be presumed, explains the gaping of the bill, in the case of the Cormorant, to obtain air needful to sustain the increased activity of respiration which is produced by the exertion of prolonged flight.—J. C. EWART, M.D., in the '*Journal of the Linnean Society (Zoology)*,' 1881, p. 455.

SUPPOSED OCCURRENCE OF THE HAIRY WOODPECKER IN OXFORDSHIRE.

—A short time back I bought of the birdstuffer here a skin of a Woodpecker, the history of which he gave as follows:—It was shot between Hook Norton and Chipping Norton, in this county, about five years ago. He skinned it in a great hurry, being then engaged in other business, and put it away till he should have time to attend to it. It was forgotten, and remained lost till a month or two ago, when, on turning out some old boxes, he came across it. He thought at the time he skinned it that it was a variety of *Dendrocopus major*, not being acquainted with the rarer Woodpeckers. As I was not sure of the species myself, I sent the skin to Mr. Harting, who very kindly examined it,—submitting it also to Prof. Newton,—and decided that it was a skin of the Hairy Woodpecker, *Dendrocopus villosus* (Linn.), remarking, however, that considering how easily foreign skins are now-a-days obtained, and how easily they may get mixed up if not immediately labelled, he could not help thinking that some mistake had probably been made in the present instance. Of course some doubt must rest on the skin in question being really that of the specimen killed near Chipping Norton; but the birdstuffer is so certain that it is the identical specimen, and so clear in the history of it, that I hardly like to let it pass unrecorded. He, moreover, states that he never had any foreign specimens of the larger Spotted Woodpeckers in his possession.—OLIVER V. APLIN (Banbury, Oxon).

ABNORMAL EGGS OF HOODED CROW.—In his new edition of Yarrell's '*Birds*,' Prof. Newton mentions an instance of a curious variety of the Raven's egg. I possess an egg of the Hooded Crow of a dull brick-dust red colour, and my friend Mr. Harry Leach, who gave it to me with other eggs of the usual type of that bird, has another of this strange variety. They are like pale-coloured Kestrel's or perhaps Hobby's eggs, with darker

markings of the same colour. He thus writes to me on the subject:—"My friend Henderson procured the eggs about May 1st, 1877, at Dunessan, in Mull, and gave them to me on the day I arrived there (May 5th). He took the two eggs out of one nest; there were three eggs in the nest, but he broke one in blowing it. He had taken some marked very similarly a few days before out of a nest in which there were eggs of the usual marking. I did not come across any of these unusual eggs myself, though I examined at least fifty nests."—ROBERT H. MITFORD (Weston Lodge, Hampstead).

COLOUR OF THE LEGS IN LESSER BLACK-BACKED GULL.—On October 3rd a specimen of the Lesser Black-backed Gull was shot on Dovercourt Beach. It is in mature plumage, but with this peculiarity: one leg and foot is of a bright yellow colour, whilst the other is a pale flesh-colour. Can this bird be a hybrid between a Greater and a Lesser Black-backed or a Herring Gull, as mentioned by Mr. Cecil Smith (Zool. 1881, p. 450).—F. KERRY (Harwich).

The owner of the specimen writes:—"On the 3rd October last, while staying at Dovercourt, Essex, I shot a Gull in mature plumage, of which the following is a description:—Length from back to tail, inclusive, nineteen inches; height, fourteen inches; beak, light yellow, with a red spot in the apex of the lower mandible; eyes, straw-coloured, with a black pupil; head, breast and tail, white; mantle and wings, brownish black; the longest feather only of the primaries has a white spot near its tip; the secondaries have an angled, thread-like, white fringe; the under feathers of the middle and large wing-coverts have white edges; and lastly, one leg is yellow and the other is flesh-colour. Is this likely to be a hybrid between the Lesser and Greater Black-backed Gulls? I should be obliged if any of your readers could give some information on the subject."—C. A. MARRIOT (11, George Lane, Lewisham, Kent).

[Mr. Howard Saunders, to whom we have submitted the foregoing, writes as follows:—"Judging from the description, the Gull is probably a Lesser Black-back, *Larus fuscus*, which has only recently assumed the adult plumage, probably at the last moult, for there is a sub-apical white spot or speculum on the first primary only, whereas if it was a really old bird it would also have a small speculum on the second primary. The variation in the colour of the two legs is interesting, but I do not consider that it in any way indicates that this example is a hybrid between *L. fuscus* and *L. marinus*. I do not believe in hybrid Gulls in a wild state, and in spite of the one point of resemblance, viz., the dark mantle, yet, in other respects, the Lesser and the Greater Black-backs are far wider apart than *L. fuscus* is from the *Larus argentatus* group, with the allied *L. cachinnans*, *L. affinis*, and *L. occidentalis*, which is confined to the coasts of California, British Columbia, &c. But *Larus marinus* has no very near allies still

existing; once he had, no doubt, but they are dead, and *L. dominicanus* of the Southern Hemisphere is perhaps his nearest surviving relative."—ED.]

ICELAND GULL AND GREAT GREY SHRIKE IN SOMERSET.—The Iceland Gull visits this county so seldom that it seems worthy of a passing notice when it does so. I therefore send a note of the occurrence of one at Somerton, in this county, on the 12th of December. I saw the bird at Mrs. Petherick's, the bird-stuffer, at Taunton, on the 14th. She also showed me a note which was sent with it, stating that it had been shot at Somerton on the date above-mentioned, and that the owner wished the Sea Gull which was sent with the letter made into a screen for a lady, in the same way Mrs. Petherick had done once before for him. Like the writer of the letter, Mrs. Petherick was rather hazy about the identity of the bird, as she called it a "sea gull" when she showed it to me, and asked what it was, having some idea, she said, that it was a young Black-back. I put her right as to the identity, and told her to try to get it for the Archaeological and Natural History Museum at Taunton, as I knew there was not one there; but the owner stuck to his former order, and desired it to be made into that receptacle for moth and dust, a feather fire-screen, in which state I saw the bird yesterday. It was a young bird in the first year's plumage. Though occurring as an occasional straggler almost every year on the south coast of Devon, this is only the second Iceland Gull I have heard of as occurring in Somerset; the first was at Weston-super-Mare, on the 28th of December, 1870, and was recorded by me in 'The Zoologist' for 1871. It was in more mature plumage than the subject of the present notice; probably as near as possible one year older, for some of the pale grey feathers were making their appearance on the back, and the primaries were not nearly so much marked with pale brown. Whether this bird had wandered inland as far as Somerton, which is almost in the middle of the county, rather nearer the borders of Dorset than the Bristol Channel, by itself, or accompanied a flock of Herring or Common Gulls, large flocks of both of which have been unusually numerous in the ploughed fields and newly-sown wheat, I have not been able to ascertain. A Great Grey Shrike was killed at Ilchester, on the 12th of this month, the same day as the Iceland Gull, and was also shown me in the flesh at Mrs. Petherick's; it is not, however, nearly so uncommon a visitor to this county. —CECIL SMITH (Bishop's Lydeard, Taunton).

EFFECTS OF A SNOW-STORM ON ANIMAL LIFE IN THE TRANSVAAL.—On the 27th of August, 1881, and two successive days, we had the most wonderful snow-storm here, the heaviest ever known to have fallen in this country; I do not remember to have seen much heavier at home whilst it lasted. A good many natives and a few white men lost their lives, being overtaken by it in the open country; very many persons, more especially in the Orange Free State, are ruined, or nearly so, by the almost total loss

of their sheep and cattle. Sprinbok and Blesbok and other game died by hundreds, besides Bustards and other large birds. It killed thousands upon thousands of small birds, such as *Ploceus oryx* and *Ploceus taka*, and many other species, which from being plentiful are now comparatively scarce: the small birds in some places were lying dead under the mimosa trees, not having been able to obtain their usual grass seeds on the ground, and pinched to death with the cold and the wet thaw.—THOMAS AYRES (Potchefstroom). [Communicated by Mr. J. H. Gurney.]

SMALL BIRDS CARRIED BY CRANES IN THEIR MIGRATIONS.—In a letter to our contemporary, 'Nature,' on this subject, to which attention was directed in 'The Zoologist' (1881, p. 260), Dr. J. Rae says:—"The account of Wagtails taking a passage on the backs of Cranes in a long flight resembles so much a somewhat similar story told and believed in by the Indians in several parts of North America, that I venture to send you an account of it. All the Indians (Maskegon Crees) round the south-western part of Hudson's Bay assert that a small bird of the *Fringillide* tribe takes a passage northward in the spring on the back of the Canada Goose (*Anser canadensis*), which reaches the shores of Hudson's Bay about the last week of April. They say that they have often seen little birds fly away from Geese when the latter have been shot or shot at. An intelligent, truthful, and educated Indian named George Rivers, who was very frequently my shooting companion for some years, assured me that he had witnessed this, and I believe I once saw it occur. It is only the Canada Goose that these little migrants use as an aerial conveyance, and certainly they both arrive at the same date, which is a week or two earlier than the other kinds of Geese (*A. hyperboreus* and *albifrons*) make their appearance. I knew the little bird well and have preserved specimens of it, but it is so long ago that I have forgotten the name. The Indians on the shores of Athabasca and Great Slave Lakes—both great resorts of wild Geese—tell a similar story. If a fabrication I do not see why it should be invented about the Canada Goose only, and not about other species which are equally numerous. It may perhaps be necessary to explain that all the Coast Indians of Hudson's Bay devote a month or more every spring to wildfowl (chiefly Geese) shooting, the game killed forming their entire food for the time. As soon as the Geese begin to arrive, the Indian constructs a concealment of willows and grass, usually near a pool of open water, at the edge of which he sets up decoys. When Geese are seen approaching—usually flying at a great height—the Indian imitates their call, and the Geese on seeing the decoys circle round, gradually coming lower down until within shot, when they are fired at. It is from these high-flying Geese that the small birds are seen to come. If the Geese are flying low it is a pretty sure indication that they have already rested on the ground somewhere near, after their long flight, when of course their tiny passengers have alighted."

SMALL BIRDS CARRIED BY CRANES IN THEIR MIGRATIONS.—At page 260 of 'The Zoologist' for 1881 there is an extract from 'Bible Customs in Bible Lands,' referring to an alleged custom of large birds carrying small ones on their backs during migration; and you, Sir, ask if any of your correspondents can furnish confirmatory evidence of this. The following fact was related to me by Mr. Wilson, the foreman on the South Gare Breakwater at the mouth of the Tees; it bears directly on the subject named, and I will give the story in my informant's own words, as nearly as possible. Wilson said:—"I was at the end of the Gare on the morning of the 16th of October—[the day named, the 16th October, 1879, was fine and cold, wind northerly; two days before, the 14th, was the last of the N.E. storm which brought the remarkable flight of Skuas]—and saw a 'Woodcock' Owl (Short-eared Owl) come flopping across the sea. As it got nearer I saw something sitting between its shoulders, and wondered what it could be. The Owl came and lit on the gearing within ten yards of where I was standing, and, directly it came down, a little bird dropped off its back and flew along the Gare. I signalled for a gun, but the Owl saw me move and flew off across the river. We followed the little bird and caught it, and and I sent it to Mussell to be made into a feather for my daughter's hat." The little bird was a Golden-crested Wren. I have asked Mussell about this affair, and he tells me Wilson gave him exactly the same version as above, and that he has heard him tell the story several times since without the least variation. Wilson could have had no inducement in telling me other than the truth, and I have every reason to believe that what I have written is correct. It does not necessarily follow that the Goldcrest came the whole way across the North Sea on the back of the Owl; but I think it is quite possible that, feeling tired on the way, it might have availed itself of the assistance of its *compagnon de voyage*, and so be carried to shore. Wilson further told me he had seen another Wren on an Owl's back about a fortnight after he saw the first one.—T. H. NELSON (Redcar).

LEACH'S PETREL IN OXFORDSHIRE.—A specimen of Leach's Petrel, *Procellaria Leachii*, was picked up dead, in a very emaciated condition, at Lower Heyford, in this county, early in December.—OLIVER V. APLIN (Banbury, Oxon).

RED-NECKED PHALAROPE AND LITTLE GULL ON THE LINCOLNSHIRE COAST.—On September 26th I received an immature specimen of the Red-necked Phalarope, which was procured near Boston; and on October 25th a Little Gull, also a young bird, obtained on the same part of the coast. Amongst other more or less uncommon birds procured in the county and forwarded to me last autumn, I may mention a Great Grey Shrike on October 7th, a male Grey Phalarope on October 18th, and a Peregrine Falcon on November 4th. On Oct. 7th another Grey Phalarope

was shot, while swimming in a pond at Little Eaton, near Derby, and on November 29th a Fork-tailed Petrel was caught by a dog whilst flying low along the ground in Markeaton Park, near Derby.—A. S. HUTCHINSON (18, Green Lane, Derby).

WHITE'S THRUSH IN YORKSHIRE.—Early in January a specimen of White's Thrush, *Turdus varius*, was obtained at Waplington Manor, near Pocklington. According to Messrs. Clarke & Roebuck's recently published 'Handbook to the Vertebrate Fauna of Yorkshire,' this makes the fourth example of this bird taken in our country. From its size and markings I incline to regard it as a male bird, but as the sex was not ascertained when the bird was skinned, so far as I know, it is difficult to pronounce with any certainty.—J. BACKHOUSE, JUN. (York).

ORNITHOLOGICAL NOTES FROM IRELAND.—A specimen of the Honey Buzzard, in immature plumage, was obtained last autumn near Newbridge, Co. Kildare. The stomach and gullet were tightly filled with large earth-worms, nearly two inches long. A Pomatorhine Skua, in immature plumage and in very fat condition, was killed as it was regaling itself upon the carcase of a dog, on the sea-shore at Glenties, Co. Donegal. A Slavonian Grebe was obtained in the same locality. Another Pomatorhine Skua, in adult plumage, was killed late in October, at Dingle, Co. Kerry, and a Glaucous Gull, in the pencilled plumage of the immature stage, was shot early in November. From a party of seven Grebes seen on the Shannon, one was shot with a rifle-bullet, and proved to be a Slavonian Grebe. A White Water Rail was shot at Mullingar. With the exception of the long wing-feathers and tip of the tail, this bird was of a beautiful white, not cream-colour, with beak and legs flesh-colour.—WILLIAMS & SON (2, Dame Street, Dublin).

KENTISH PLOVER ON THE LINCOLNSHIRE COAST.—On the 8th October last I received in the flesh an immature specimen of the Kentish Plover, *Ægialitis cantiana*, which was shot on the coast at Friskney, near Boston. Mr. Cordeaux, in his 'Birds of the Humber District,' refers (p. 93) to this species as rare, and mentions only two instances of its occurrence in his district, both on the Yorkshire coast, in May, 1869. The bird now in my possession seems to be the first of its kind procured in Lincolnshire, and the occurrence therefore is worth recording.—A. S. HUTCHINSON (18, Green Lane, Derby).

[The description of the plumage and colour of the soft parts, notified by our correspondent, but omitted here for want of space, indicate that he has correctly identified the species.—ED.]

CURIOUS CAPTURE OF A POCHARD.—About ten o'clock on the night of the 9th December last the inmates of a house in this town were startled

by the smashing of glass in an adjoining outhouse. On going into the place they found that a duck (which was quite uninjured) had dashed itself through the skylight. I went down to see the bird, and found a fine male Pochard, *Fuligula ferina*. A faint light was shining on the glass, which was frosted over, and I imagine the bird mistook it for a patch of water, and accordingly pitched on it.—OLIVER V. APLIN (Banbury, Oxon).

THE DORSE, OR GOLDEN COD, IN CORNWALL.—I must demur to Mr. Thomas Edward's statement (p. 23) that the Dorse is "a rare visitor to Britain." In my experience it is a fish of which, in Mount's Bay, you may certainly expect to have many specimens in the spring and early summer every year. The fishermen mistake it for a dark-coloured Common Cod, and as Cod is, at the period of the appearance in our waters of the Dorse, a fish out of season, the latter is seldom to be seen in the market. As a fact the Dorse in spring is in very good condition for the table, and is in my opinion at all times of much more frequent occurrence in these western waters than the Haddock, which is recognised, I believe, as a fish of common occurrence in British seas.—THOMAS CORNISH (Penzance).

THE BLACK-FISH, *Centrolophus pompilus*, IN THE COLNE.—On the 20th December last Capt. Cranfield, of Rowhedge, captured a specimen of this apparently rare fish at the mouth of the Colne. Its unusual appearance and black colour led to its being forwarded to me to name. In the authors to whom I have access I can only find a record of five specimens.—HENRY LAVER (Colchester).

ERRATA.—Page 24, line 28, for "progenital" read "urogenital"; p. 24, l. 31, for "Strichaster" read "Stichaster"; same page, l. 37, for "Miller and Loschell," read "Müller and Troschell"; p. 35, l. 4, for "1878" read "1873"; p. 37, l. 14, for "the College of Surgeons as their conservators" read "the College of Surgeons and their conservators."

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

January 19, 1882.—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., President, in the chair.

The death of Mr. Richard Kippist, the Society's former Librarian, was announced, and the meeting recorded its sense of his efficient and faithful service for nearly half a century. A valuable donation of books from the late Treasurer (Mr. F. Currey) was also announced, and the Society's thanks accorded.

There was exhibited for Mr. W. Bancroft Espent an albino specimen of Bat (*Molossus obscurus*, Geoffr., from Jamaica, albinism in the *Cheiroptera* being said to be extremely rare

Dr. T. Spencer Cobbold called attention to living examples of *Leptodera*, shown under the microscope.

Mr. W. Percy Sladen read a paper on the *Asteroidea* of the 'Challenger' Expedition (part i. family *Pterasteridæ*). After some preliminary remarks and a synopsis of the genera, he observed that hitherto this family has been represented by a very limited number of forms, only nine species being on record. Eight of these belonged to the genera *Pteraster* and *Retaster*, and the ninth was the type and solitary representative of *Hymenaster*—a genus established by Sir Wyville Thomson for an extraordinary asterid discovered during the cruise of H.M.S. 'Porcupine.' Thirty-four species of *Pterasteridæ* have been obtained by the 'Challenger,' only two of which were previously known. Of the thirty-two new species three belong to *Pteraster*, four to *Retaster*, and the remarkable number of twenty to *Hymenaster*, a genus which is now found to possess a world-wide distribution in deep waters. The remaining five species are the representatives of three new genera—viz. *Marsipaster*, two species; *Benthaster*, two; and *Calyptroster*, one. Thereafter the author referred to the terminology used by him, and there followed a description of the new deep-sea forms.—J. MURIE.

ZOOLOGICAL SOCIETY OF LONDON.

Jan. 17, 1882.—Prof. W. H. FLOWER, F.R.S., President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of December, 1881, and called special attention to a young male Guemul Deer, *Furcifer chilensis*, from Patagonia, and a Germain's Peacock-Pheasant, *Polyplectron Germaini*, which were new to the Society's Collection.

Prof. Newton exhibited (by favour of Messrs. Hallett & Co.) the skin of an example of *Notornis Mantelli* recently received from New Zealand. This was stated to be the third example of this almost extinct bird which had been yet obtained.

Mr. W. K. Parker read a memoir on the structure and development of the skull in the *Crocodylia*.

Mr. Oldfield Thomas gave an account of a series of Rodents lately collected by Mr. Stolzmann in Northern Peru. The chief interest in the collection was stated to lie in the fine series of Mice of the genera *Hesperomys* and *Holochilus* contained in it.

A communication was read from Mr. T. E. Buckley on the variability of plumage exhibited by the Red Grouse.

A communication was read from Mr. G. B. Sowerby, jun., containing

descriptions of some new species of Shells in the collection of Mr. J. Cosmo Melvill.

Prof. F. Jeffrey Bell read descriptions of several new or rare species of *Asteroidea* contained in the collection of the British Museum.

A communication was read from Mr. W. L. Distant, containing the characters of some undescribed species of *Cicadidae* from the Australian and Pacific regions.—P. L. SCLATER, *Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON.

December 7, 1881.—H. T. STANTON, Esq., F.R.S., &c., President, in the chair.

A. J. Scollick, Esq. (Albion Lodge, Putney, S.W.), was balloted for and elected a Member of the Society.

Mr. W. C. Boyd exhibited a variety of *Ennomos tiliaria*, Bkh., captured last autumn at Cheshunt.

Mr. C. O. Waterhouse exhibited specimens of *Scenopinus fenestralis*, Latr., with their pupa-cases, bred from dried roots of *Aconitum*; a specimen of *Phora rufipes*, Meign., bred from *Nematus ribesii*, and specimens of *Oscinis pusilla*, Zett., bred from stems of barley.

Mr. G. H. Verrall expressed surprise that the larva of *Scenopinus* should be found feeding on the *Aconitum* roots. This species was commonly known as "the carpet fly," and its larva mostly fed on old cotton or woollen materials, frequently on old greasy horse-cloths, the fly being a general inhabitant of stable-windows; hence its name.

Mr. E. A. Fitch remarked that he had bred *Phora rufipes* in some numbers, also a specimen of *Phora minor*, Zett.?, from the larvæ of *Nematus salicis*.

Mr. Verrall stated that he once boxed a living hornet (*Vespa crabro*) and several specimens of one of the *Phoridae* emerged from it, after death.

Mr. F. P. Pascoe exhibited the larva of an ant-lion, taken alive by a London grocer from a barrel of currants received from Zante. Mr. Pascoe said that it had lived in his possession for more than a month, but apparently in a semi-torpid state, and he could not induce it to eat anything.

Mr. R. M'Lachlan exhibited a curculionideous larva found by Mr. G. F. Wilson, of Weybridge, feeding in the bulbs of lilies (probably from Japan), which had proved very destructive to some of those plants grown in pots. It resembled an *Otiorhynchus* larva, but was probably more closely allied to that of a *Brachycerus* (cf. Ann. Soc. Ent. France, 1875, pp. 95-6; 1874, pl. iv. fig. i.).

Mr. A. S. Olliff exhibited a specimen of *Harpalus cupreus*, Dej., captured in the Isle of Wight by Mr. A. C. Horner, of Tunbridge.

Mr. H. B. Pim exhibited a specimen of a *Telephorus* which he captured

last summer at West Wickham. This had been pronounced by the Rev. W. W. Fowler to be "possibly a variety of *T. lituratus*, Fall., but probably new."

The Secretary exhibited a box of locust egg-cases, with specimens of the Bombyliid larvæ found feeding on the eggs, transmitted by Sir Robert Biddulph from Cyprus; he also read a communication received therewith from the Colonial Office, with a report on the same.

Mr. W. L. Distant read "Descriptions of new species belonging to the Homopterous family *Cicadida*." Twenty-two new species were described, three from the Neotropical, three from the Ethiopian, thirteen from the Oriental, one Palearctic, one Australian, and one from the Pacific Regions.

Mr. A. G. Butler communicated a "List of Heterocerous Lepidoptera collected in Chili by Thomas Edmonds, Esq. Part I. Sphinges and Bombyces."—E. A. FITCH, *Hon. Sec.*

NOTICES OF NEW BOOKS.

A Hunter's Wanderings in Africa. Being a Narrative of Nine Years spent amongst the Game of the far interior of South Africa By FREDERICK COURTENEY SELOUS. 8vo, pp. 448, with nineteen full-page illustrations. London: Richard Bentley & Son. 1881.

OF the numerous books which during the last few years have been written about Africa, the majority have appealed chiefly to the sympathies of geographers, and are notable for the important additions which they have been the means of making to our knowledge of the geology and geography of that vast, yet still too little known, continent.

The present work has a very different aim. It is a book for sportsmen, and especially for those whose delight is in the pursuit of what is generally termed "big game." To compass the death of Elephants, Rhinoceroses, Giraffes, Buffaloes, Elands and other Antelopes, has been apparently the author's sole object in life for the last nine years, nor has the king of beasts escaped the bullet; when by chance he has been encountered. Primarily, the inducement to "wander" in Africa seems to have been ivory, which, if it can only be procured in sufficient quantity, enables the hunter not only to pay his way, but to put something handsome in his pocket at the end of every expedition.

Mr. Selous found, however, that the profits of the professional

Elephant hunter are, after all, somewhat precarious, depending not only upon a considerable amount of personal exertion, but also, to a great extent, upon the luck of falling in with herds from which fine old tuskers may be killed. Considering that most of the Elephants killed by him were hunted on foot instead of on horseback, he seems to have been wonderfully successful. In the course of four months he killed to his own gun forty-two Elephants, eleven of which were big bulls, whose tusks averaged 44 lbs. apiece. He also shot several very fine cow Elephants, whose tusks weighed from 15 lbs to 16 lbs. The tusks of the largest bull killed, when thoroughly dried out, weighed 74 lbs. each. The weapon used was a smooth-bore elephant gun, carrying a four-ounce round bullet hardened with zinc and quicksilver, and backed by 15 drachms of coarse powder—in other words, a charge *five* times as heavy as that used by the majority of sportsmen for shooting game in England! The man who can stand the frequent employment of such a charge as this must indeed have nerves of iron.

But it is not only in the light of a successful Elephant-hunter that the author is to be regarded. During his explorations beyond the Zambesi, on the River Chobe, and in the Matabele and Mashuna countries, his powers of observation were fully exercised in noting the species of large Mammalia met with, especially the Antelopes, and in recording particulars of their geographical distribution. His remarks on this subject, accompanied with drawings of the heads of the different species of Antelopes, seen or shot by him at various times and in various places, are of special interest to naturalists, since they not only embody the results of many years personal experience, but in many cases convey information concerning the haunts and habits of species about which hardly anything was previously known.

Chapter XII. entitled "Notes upon South African Rhinoceroses," and Chapter XIII. "Notes upon South Central African Antelopes," may be specially mentioned as containing valuable statistics, and must be regarded as affording the latest and best information on the subjects of which they treat.

On the whole, although the book is chiefly occupied with hunting incidents, and furnishes, it must be confessed, a record of terrible slaughter, it contains many observations on the habits

of wild animals which will be very acceptable to naturalists. It is with these that we are chiefly concerned, and the reader who happens to be a sportsman as well as a naturalist will thoroughly enjoy the perusal of the author's adventures so graphically described by him. It is one of the best books on sport and travel in South Africa that has appeared for a long time.

Angling Literature in England, and Descriptions of Fishing by the Ancients : with a Notice of some books on other piscatorial subjects. By OSMUND LAMBERT. 12mo, pp. 87. Sampson, Low & Co. 1881.

THOSE who are already familiar with the Catalogues of Books relating to Fishing by Sir Henry Ellis, Pickering, Russell Smith, and Mr. Westwood, will doubtless experience some disappointment if they expect to find in the present publication an attempt to improve upon its predecessors. The title is too comprehensive, and raises expectations not destined to be realized. It does not contain, as might be supposed, a complete list of English books on Angling, with bibliographical notes, nor are the notices of classical allusions to the subject anything like exhaustive. Apparently the author seeks merely to direct attention to some of the most remarkable English books on fishing, with here and there a quotation to illustrate the style of the writer noticed ; and the same may be said as regards the Greek and Latin authors who have in any marked degree alluded to fishing with an angle.

In ransacking this particular field of literature, Mr. Lambert has evidently bestowed considerable time and labour upon his undertaking, and the result is a delightful little book of less than a hundred pages, which, in the hands of a travelling angler, would most pleasantly beguile the tedium of a long railway journey. Printed on hand-made paper, and daintily bound in vellum, it is just the sort of book to arrest the attention of those who are not content with the mere exercise of their favourite branch of sport, but are glad to make themselves acquainted with all that is written about it. To readers of this class, Mr. Lambert's remarks on the best editions of favourite authors will doubtless be very acceptable.
